County of Loudoun

Department of Planning

MEMORANDUM

DATE: April 5, 2007

TO: Loudoun County Planning Commission

FROM: Rodion Iwanczuk, Senior Planner RI
Department of Planning

SUBJECT: **April 9, 2007 Planning Commission Worksession:**
SPEX 2006-0022 - Western High School at Fields Farm

The Planning Commission held a Public Hearing on the Western High School at Fields Farm Special Exception (SPEX) application on March 19, 2007; the Commission voted 8-0-1 (Syska—absent) to forward the application to committee for further discussion. Presentations were made by County staff, the Applicant, and Town of Purcellville officials. A total of 12 individuals spoke regarding the application; 9 speakers voiced support for the project, including a former Purcellville Town Council member, and 3 individuals (2 current Purcellville planning commission members and a former Purcellville mayor) spoke in opposition to the project. Written comments from an additional individual in support of the project were received following the public hearing and were subsequently distributed to the Planning Commission. Speakers in opposition to the project cited transportation and utility concerns and disputed proposed findings in the Planning Commission Staff Report that the application conforms with the Purcellville Urban Growth Area Management Plan (PUGAMP). The majority of speakers at the public hearing cited the need for an additional high school in Western Loudoun County that would relieve overcrowding at Loudoun Valley High School and allow Harmony Intermediate School to operate as a middle school.

Commission members asked a number of questions at the Public Hearing which staff has organized into three (3) categories: facility details and enrollment, utilities, and transportation. Other transportation issues noted in the Planning Commission Staff Report that the Planning Commission may wish to further discuss are also highlighted.

Facility Details and Enrollment

Planning Commissioners asked what the total capacity of the school would be, and what the school population at buildout for the recommended Western High School attendance zone would be. The school building will be a facility of up to 262,000 square feet and designed for a capacity of 1,600 students and 200 staff. Projected attendance zones for the school extend west, north, and east from the school; students from within the boundaries of Purcellville would continue to attend Loudoun Valley High School. Approximately 40 bus routes would serve the new school (leaving 40 bus routes to continue serving Loudoun Valley High School).

Current enrollment for Grades 9-12 is 2,046, with those in Ninth Grade attending classes at Harmony Intermediate School. If approved, 1,155 students would attend Western High School at Fields Farm during the 2008-09 school year, 1,010 would attend Loudoun Valley, for a total of 2,165 between the two schools. By the 2011-12 school year, enrollment figures would be 1,457, 1,126, and 2,583, respectively, an increase of 26.2 percent from 2008-09.

According to a buildout analysis prepared by the County's demographer, 12,000 new dwelling units could be built by 2030 within the Western High School attendance area. It is assumed in this analysis that the non-rural areas (Towns and Joint Land Management Areas) would be built-out by 2030. Potential school population at buildout in the attendance area will be provided at the worksession on April 9.

Utilities

Planning Commissioners asked several questions at the public hearing that relate to the type of wastewater treatment and disposal system intended for the proposed high school and how the wastewater system is classified. Loudoun County Public Schools (LCPS) is proposing to install and operate an individual onsite wastewater treatment system (OWTS) to serve the high school, as described in Attachment 3. The type of wastewater system proposed for the new high school uses aerobic technology which will disperse effluent to a drainfield using drip irrigation. The Mountain View Elementary School uses an onsite wastewater treatment system which is also based on aerobic technology. However, that system uses trenches to disperse the effluent into the drainfield. Both types of aerobic systems provide effective treatment of wastewater and are widely used in the County. Staff from the Health Department as well as the applicant will be available at the Planning Commission worksession to answer questions about the proposed system.

The term "alternative," as it relates to wastewater treatment, is not defined (Attachment 4). Additionally, it is not defined in any State or County code, ordinance, or regulation, including Chapter 1066 of the Code of Ordinances of Loudoun County. Staff notes that a definition of "alternative onsite systems" is included in a draft version to update Chapter 1066 which is currently under review by County staff.

Transportation

Transportation-related questions posed by the Planning Commission at the public hearing include the number of student drivers anticipated, the number of students in the Route 287 corridor, whether the proposed school's total occupancy was factored into the applicant's Transportation Impact Analysis (TIA), whether the TIA included impacts caused by the Upper Loudoun Youth Football League facilities, the impact of peak and off-hour peak traffic of the proposed school on businesses and residents, the estimated cost to pave Allder School Road between Routes 287 and 611, and possible advancement of an interchange for Routes 7 and 690. The applicant's response to these questions is included in Attachment 3. Issues surrounding the recommended improvements and phasing are discussed below.

Improvements. The proposed roadway improvements to occur prior to issuance of a Certificate of Occupancy are:

- Allder School Road and school entrance – Westbound left turn lane
- Allder School Road and Route 611 – Eastbound right turn lane
- Allder School Road and Route 690 – Roundabout
- Route 690 and Route 9 – Contribute fair share of $97,500 for roundabout or other intersection improvement
- Regional road contribution ($136,407) – anticipated for use with Route 690/Route 9 roundabout

If the Route 690/Route 9 roundabout is not constructed, the fair share amount will be used for other improvement at the Route 690/Route 9 intersection, taking into account the offset driveway for Hillsboro Elementary School. The regional road contribution will be made available for other use in the vicinity of Purcellville that serves school-related traffic.

Within one year of Certificate of Occupancy:

- Hirst Drive and Hatcher Avenue – Southbound left turn lane and westbound right turn lane

- Hirst Drive and Maple Avenue – Eastbound right turn lane, westbound left turn lane, and northbound right turn lane

As staff noted at the public hearing, the Virginia Department of Transportation (VDOT) has prepared an estimate of the cost of a two-lane roundabout at the intersection of Routes 9 and 690 in Hillsboro, in response to a request for consideration of a roundabout from the Town of Hillsboro. Hillsboro officials, however, are supportive of a one-lane roundabout as recommended during a charrette held in early 2006 in Hillsboro. No funding for a roundabout at that location, either one-lane or two-lanes, currently exists, apart from the contributions included in the conditions of approval for this application (Attachment 2).

According to VDOT, the total cost for completing a two-lane roundabout would be $6.1 million, based on a 2011 construction year. This would include costs for preliminary engineering, environmental permitting and mitigation, acquiring right-of-way and relocating utilities, and construction (Attachment 5).

Staff have recommended, as a Condition of Approval, that the regional road contribution of $136,407 be used instead for other road improvement projects in the vicinity of the Town of Purcellville in case a roundabout is not constructed at Routes 9 and 690. Although not included in the Conditions of Approval, County staff initially recommended providing a southbound right-turn lane from Route 287 onto Hirst Drive with appropriate signal modifications and a westbound right-turn lane from Business Route 7 (Main Street) onto Hatcher Avenue.

Paving of an unpaved portion of Allder School Road (Route 711) between Routes 690 and 719 may begin during 2008-09. The Board of Supervisors has included $5.9 million for Allder School Road paving during Fiscal Year 2009 in the 2009-12 Capital Improvement Program (CIP) that is due for adoption later in April. No plans or construction is currently scheduled for paving Allder School Road between Routes 287 and 611, which, according to a memorandum from LCPS to the Planning Commission, is estimated to cost $8.72 million (Attachment 3, p. A-25). No construction is scheduled for a proposed interchange at Route 7 and Route 690, although a November 2006 bond issue that was approved by Loudoun County voters allocated $500,000 for project design.

Phasing. The County Attorney's Office has also noted that the two phased improvements at the time of Certificate of Occupancy issuance may establish a precedent that other development applications may seek to emulate. The County Attorney's Office suggests that these two improvements be provided prior to issuance of a Certificate of Occupancy.

RECOMMENDATION

Staff recommends that the Planning Commission forward this item to the Board of Supervisors for a Public Hearing with a recommendation of approval, with the findings and conditions of approval included in the March 19, 2007 Staff Report.

SUGGESTED MOTIONS

1. I move that the Planning Commission forward Western High School at Fields Farm, SPEX 2006-0022 to the Board of Supervisors with a recommendation of approval, with the findings and conditions of approval included in the March 19, 2007 Staff Report.

OR,

2. I move an alternate motion.

ATTACHMENTS

1. Findings contained in March 19, 2007 Staff Report
2. Conditions of Approval contained in March 19, 2007 Staff Report
3. Memorandum, Loudoun County Public Schools, April 2, 2007, Additional Information in Response to the Commission's and Public Comment Questions for the Committee of the Whole April 9, 2007 Worksession
4. Health Department - Information Concerning "Alternative Wastewater Treatment Systems"
5. VDOT Cost Estimate for Routes 9/690 Roundabout

NOTE: Attachments are not available electronically, but may be viewed at the Planning Department front counter or in the Building and Development file room.

Western High School at Fields Farm, SPEX 2006-0022

Planning Commission Worksession, April 9, 2007

FINDINGS

1. The proposal conforms to the policy guidance recommended in the Revised General Plan and the Purcellville Urban Growth Area Management Plan. The proposed high school is consistent with PUGAMP policies and specifically with the general schools locations depicted in Figure 10 on page 48 in the PUGAMP. Further, in accordance with the determination made on June 22, 2006 by the Loudoun County Zoning Administrator, a Commission Permit is not needed.

2. The application conforms to the Revised 1993 Zoning Ordinance.

3. The high school building and accessory structures and facilities are located within the Purcellville Joint Land Management Area.

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Western High School at Fields Farm, SPEX 2006-0022
Planning Commission Worksession, April 9, 2007

CONDITIONS OF APPROVAL

1. **Special Exception Plat.** The property shall be developed in substantial conformance with the Special Exception Plat, HS-3, High School at Fields Farm Property prepared by Timmons Group, dated June 20, 2006 and revised through February 22, 2007. Approval of this public school use does not relieve the applicant of any Zoning Ordinance, Codified Ordinance, or any other requirement.

2. **Water Supply and Sanitary Sewer.** The applicant shall submit required studies to the Loudoun County Health Department that demonstrate that sufficient potable water is available to serve the proposed use prior to site plan approval. The applicant shall also submit additional information prior to site plan approval as requested by the Loudoun County Health Department concerning the design of the proposed septic system, which shall be necessary prior to a septic permit being issued. Water and wastewater systems shall operate in accordance with the conditions attached to said permits issued by the Loudoun County Health Department.

3. **Transportation Improvements.** Proposed roadway improvements to occur prior to issuance of a Certificate of Occupancy school occupancy are:
   - Allder School Road and school entrance – Westbound left turn lane
   - Allder School Road and Route 611 – Eastbound right turn lane
   - Allder School Road and Route 690 – Roundabout
   - Route 690 and Route 9 – Contribute fair share of $97,500 for roundabout or other intersection improvement
   - Regional road contribution ($136,407) – anticipated for use with Route 690/Route 9 roundabout

   In case that the Route 690/Route 9 roundabout is not constructed, the fair share amount will be used for other improvement at the Route 690/Route 9 intersection, taking into account the offset driveway for Hillsboro Elementary School. The regional road contribution will be made available for other use in the

vicinity of Purcellville that serves school-related traffic.

Within one year of Certificate of Occupancy:

- Hirst Drive and Hatcher Avenue – Southbound left turn lane and westbound right turn lane
- Hirst Drive and Maple Avenue – Eastbound right turn lane, westbound left turn lane, and northbound right turn lane

4. **Lighting.** Signage and lighting will conform to Section 5-1200 and Section 5-1500 of the Revised 1993 Loudoun County Zoning Ordinance and as necessary for safety and security. Signage will be applied separately. Site building and parking lot lighting shall be designed and constructed with cut-off and fully-shielded fixtures so that light is directed inward and downward toward the athletic field or interior of the property, respectively, away from adjacent streets and properties. Parking lot lighting shall be turned off within one hour following the end of evening activities, or by 11 p.m., whichever occurs first. Athletic field lighting shall be turned off by 11 p.m. and shall be directed inward and downward toward the fields, incorporate a reflector technology system that directs light onto the field and minimizes glare and spillage, and reduces energy and maintenance costs.

5. **Noise.** Installation of the outdoor public address system shall be limited to the stadium/track and the high school baseball and softball fields. Noise emanating from the public address system shall not exceed 60 dBA at the property boundaries and use of the system shall be prohibited after 11 p.m.

6. **Parking.** Parking will meet or exceed the requirements of the Revised 1993 Loudoun County Zoning Ordinance, Section 5-1100.

7. **Fire Safety.** The school building will be sprinklered, and fire hydrants will be provided in accordance with the Loudoun County Facilities Standards Manual.

8. **Building and Site Design.** Stormwater management and Best Management Practices (BMP) will be provided on site in accordance with the Virginia Stormwater Management Handbook and the Loudoun County Facilities Standards Manual. Bioretention basins will be submitted to Loudoun County for

approval prior to site plan approval.

9. **Previous Approvals.** The parcel is subject to SPEX 2004-0009 Fields Farm Property-Upper Loudoun Youth Football League Recreation Facility plat and conditions of approval; STPL 2002-0084, Mountain View Elementary School; STPL 2001-0113, Purcellville (Mountain View) Elementary School; CPAP 2003-0025, Wetland Mitigation at Purcellville.

10. **Sediment & Erosion Control.** Sediment and erosion control will be provided in accordance with the Virginia Erosion and Sediment Control Handbook.

11. **Unpaved Roadway.** The Loudoun County Public Schools Bus Transport Division will restrict school bus usage of the unpaved section of Route 711 between Routes 287 and 611 except to pick-up/drop-off students, or unless traffic conditions warrant use of the unpaved section. Additionally, although the Loudoun County Public Schools lacks control over private vehicles using the unpaved portion of Allder School Road, the school district shall provide information to students who would drive to school of the best routes to use for travel to the school that would not include that section of Allder School Road.

12. **Cash Contribution for Transportation Improvements.**

- Route 690 and Route 9 – Contribute prior fair share of $97,500 for roundabout or other intersection improvement
- Regional road contribution ($136,407) – anticipated for use with Route 690/Route 9 roundabout

In case that the Route 690/Route 9 roundabout is not constructed, the fair share amount will be used for other improvement at the Route 690/Route 9 intersection, taking into account the offset driveway for Hillsboro Elementary School. The regional road contribution will be made available for other use in the vicinity of Purcellville that serves school-related traffic. Both types of contribution shall be made prior to issuance of a Certificate of Occupancy.

13. **Transportation Improvements Implementation.** Impacts to roadways will be experienced upon the opening of the proposed school, however, certain

roadways and transportation routes will not be affected as greatly as other roadways and routes. In order to provide the greatest mitigation for traffic and alleviate school overcrowding, as many as two of the proposed transportation improvements may be completed up to one year following the issuance of a Certificate of Occupancy for the proposed school.

- Hirst Drive and Hatcher Avenue – Southbound left turn lane and westbound right turn lane
- Hirst Drive and Maple Avenue – Eastbound right turn lane, westbound left turn lane, and northbound right turn lane

14. **Reforestation of River and Stream Corridors.** Loudoun County Public Schools shall work with the Loudoun County Arborist on reforestation measures for the river and stream corridor. Such reforestation measures shall be to the satisfaction of the County Arborist and a plan for restoration measures shall be submitted to the County Arborist prior to site plan approval.

15. **Water Conservation.** The Loudoun County Public Schools shall install low-flow toilets in all bathrooms in the high school and associated facilities prior to the issuance of a Certificate of Occupancy. No-flow urinals shall be installed on a trial basis in teacher and staff bathrooms with appropriate education provided on the use of such fixtures. Such installation may include additional back-up plumbing to be used in case of failure of the no-flow option. Other water conservation measures may include a rooftop rainfall collection system that may be used in conjunction with irrigation systems.

16. **Allder School Road Sidewalk.** A trail on the south side of the floodplain that exists on the south side of Allder School Road shall be used as a sidewalk for the Allder School Road frontage and shall extend eastward to the property line.

17. **Construction Entrance.** An existing gravel driveway that is located to the east of 36841 Allder School Road shall be used as the primary construction vehicle entrance, and upon completion of construction shall be maintained for emergency fire and rescue access. A limited number of heavier construction vehicles may enter the site via the existing Mountain View Elementary School driveway. Contractors will be instructed to avoid residential neighborhoods and use Route 690 and Route 611 to and from Allder School Road, and will also

avoid travel during peak commuter and school travel periods. Construction deliveries will take place between 7 a.m. and 5 p.m.

18. **50-foot Conservation Buffer.** A 50-foot conservation buffer along all floodplains on the subject property shall be maintained. A minor encroachment for a sanitary facility as designated on the Special Exception plat shall not constitute a violation of this condition.

19. **Allder Road Snow/Ice Removal.** Road maintenance for Allder School Road (Route 711) is the responsibility of the Virginia Department of Transportation (VDOT), which maintains guidelines for snow and ice removal and treatment for classes of roadways. Loudoun County Public Schools shall consult with VDOT and request that Allder School Road in the vicinity of the high school entrance driveway be considered a priority "hot spot" for snow and ice removal and treatment.

20. **Memorialization of Farmstead Complex.** Loudoun County Public Schools shall permanently provide space within, and also on the grounds of, the high school for memorialization of the farmstead complex formerly a part of Fields Farm. Such memorialization may consist of artifacts, photographs, documents or other written material, and plaques or markers, that note the existence of Fields Farm, the farm's historical context, and depict Western Loudoun County farm life during the Reconstruction and Growth Period (1865-1917). Such space for memorialization shall be provided by the time that a Certificate of Occupancy is issued and may be enhanced after the school opens.

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MEMORANDUM

To: Loudoun County Planning Commission
From: Loudoun County Public Schools
Date: April 2, 2007
Re: **Western Loudoun High School at Fields Farm (SPEX 2006-0022) Additional Information in Response to the Commission's and Public Comment Questions for the Committee of the Whole April 9, 2007 Work Session**

At the March 19th Planning Commission public hearing a number of questions were raised with regard to the proposed Western Loudoun high school. The purpose of this memorandum is to provide responses to the Commission's and public comment questions. The responses have been grouped by topic as identified below. Loudoun County Public School staff and our consulting team will be available at the Committee of the Whole work session to respond to any additional questions the Commission may have.

Wastewater Treatment Facility:

Question: Describe in detail the wastewater system components.

Under the proposed system, the wastewater produced from the school will be collected by a gravity collection system to an influent pump station. The flow from the high school football stadium will be collected by a separate gravity collection system to its own packaged pump station. Flow from this pump station will be pumped into a gravity manhole that immediately precedes the influent pump station. From the influent pump station, the wastewater will be transferred to a pre-treatment system consisting of a flow equalization tank and an Intermittent Cycle Extended Aeration (ICEAS) system. From the pre-treatment system, the effluent will flow to the drainfield dosing tanks where the wastewater will be pumped to a drip irrigation disposal field. The primary drip irrigation absorption field is approximately 3.5 acres. Approximately 3.5 acres of reserve area shall also be provided. The hydraulic profile is included as Attachment 1.

Question: If the proposed system were to strictly be a "septic system: what is the total number of people that could exist at this site?

No use the size of elementary, middle or high schools should be placed on a "simple well and septic system". For overall public health and environmental reasons, regulatory agencies and consultants agree that pretreatment of effluent is fundamental to any design. A water treatment facility and a wastewater disposal system that provides for advanced pre-treatment of effluent should be utilized.

In order to accurately answer this question, even on a theoretical basis, LCPS would have to undertake a new engineering study and seek review by the Health Department, who would, in all likelihood, strongly discourage the use of such a process. The pre-treatment technology of the proposed system results in effluent that is 6-10 times cleaner than the typical septic-only process. Approximately ninety percent of the contaminants are removed before discharge to the drainfield. The proposed system is environmentally superior and preferable. (Reference Attachment 2, for treatment comparison for Septic only vs. Biological Aeration)

Question: Upper Loudoun Youth Football League: Town of Purcellville representatives have stated that the Western Loudoun high school special exception application "steals" the drainfield from the ULYFL. Planning Commissioners have asked who is funding the ULYFL pump and haul and what the plans are for moving forward with the ULYFL facilities.

As a part of the review for the high school Special Exception a drainfield reservation for future use by the ULYFL has been maintained. It is not depicted on the Special Exception plat at the recommendation of the Health Department (because the ULYFL is not a part of the high school special exception). The drainfield area is located to the south of the high school drainfield along the western property boundary.

At the October 4, 2005, Board of Supervisors Meeting the Board approved the Board Member Initiated permanent pump and haul to serve the ULYFL (9-0). The 10/4/05 Staff Report states that the costs of constructing pump and haul facilities and all operating costs would be borne by the ULYFL. This information has been confirmed by Parks and Recreation. A copy of the Board Action Item and an excerpt from the 10/4/05 Board minutes are included as Attachment 3. Parks and Recreation staff advise that the site plan for the ULYFL is in preparation and is expected to be filed in early summer. Construction could begin once the site plan is approved. The ULYFL complex will utilize pump and haul facilities until such time as an on site treatment system is constructed for use by the ULYFL or a connection is made to public utilities. There are no plans to connect the ULYFL to the high school wastewater facilities.

Question: Does the Department of Environmental Quality have a definition of the term "alternative" treatment? The Commission requested a recommendation from a third party, such as the Health Department, regarding the type of system being proposed.

This question is addressed to staff.

Water Treatment Facility:

Question: The Town of Purcellville raised questions regarding the February 21, 2007, Detailed Hydrogeologic Evaluation, proposed fire flow protection, nitrate concerns at the existing Mountain View Elementary School, and the proposed water treatment facility.

HYDROGEOLOGICAL STUDY

Facilities Standards Manual (FSM) Compliance: Does the 2/21/07 Detailed Hydrogeologic Evaluation comply with the FSM?

The Preliminary and Detailed Hydrogeologic Evaluations (evaluations) for the site have been completed in conformance with the requirements of the Loudoun County Facilities Standards Manual (FSM) Section 6.240 "Hydrogeologic Report Requirements for Other Developments", and as such LCPS does not currently seek relief from compliance with the FSM. **As a matter of prudence, the evaluations were completed in compliance with FSM even though average school demands during any single month will likely be less than 10,000 gallons per day (gpd) (i.e., as required to make FSM 6.240 applicable to the site).** The highlighted section of the 2/21/07 letter to Kevin Lewis, Director of Construction, from David Duncan, Triad Engineering, Inc., and contained in the packet of information submitted by the Town at the PCPH states that the study was done in compliance with the FSM even though it was not required to do so.

Fire Protection: The statement was made that it is not clear how adequate supply and/or storage are being provided to satisfy fire protection concerns.

As a part of the construction of the water supply system, water storage sufficient to satisfy the requirements for fire suppression capabilities will be provided. Bury + Partners will calculate the fire flow needs based on the size of the facilities and the well drawn down tests. The building will have sprinklers and there will be a fire department connection (the Y stand) at the front of the building. At Mountain View, there is a 54,000 gallon storage tank. The high school will be provided with a separate larger tank to meet the fire protection requirements. The proposed system has been reviewed with the Department of Fire and Rescue and they have indicated that they have no outstanding comments or issues.

Nitrate Contamination Concerns: What is the nitrate contamination referenced in the Hydrogeologic Study?

The Detailed Hydrogeologic Evaluation indicates that nitrate has been detected in a portion of the shallow monitoring wells that were installed on the site to monitor the effectiveness of the existing elementary school septic system. The detected nitrate concentrations have apparently been less than the Maximum Contaminant Level (MCL) and MCL Goal (MCLG). The MCL is defined as the highest level of a contaminant that

is allowed in drinking water, and the MCLG is defined as the level in drinking water below which there is no known or expected risk to health. As such, the nitrate concentrations detected in the shallow monitoring wells at the site are considered safe/suitable for drinking water with no known or expected risk to health. LCPS has been working with the Health Department to ensure that even these low levels of nitrate are addressed.

The shallow monitoring wells do not serve as drinking water wells. The shallow wells were purposely designed for the early detection of nitrates in shallow groundwater; and as such, minor nitrate detection in those wells is not unusual. Nitrate was not detected in the groundwater sample collected from the newly installed HS-3 well. The HS-3 well was installed in accordance with setback, casing, and grouting regulations that have been written specifically to protect drinking water sources from surface and shallow influences such as septic systems.

Adequate Peak Demand Concerns: The Town of Purcellville raised concerns for peak demand and in the packet submitted to the Commission at the public hearing state, "As the existing Elementary School and proposed HS-3 wells have a "relatively direct hydrogeologic connection" alternate pumping schedules for each are required to provide adequate peak demand and to address groundwater recovery. The system as proposed has little room for error".

Per Virginia Department of Health Office of Drinking Water (VDH ODW) policy a minimum well yield of 30.4 gallons per minute (gpm) is required for the HS-3 supply well; however, at this yield, VDH ODW indicated that significant storage will be required to meet the peak hour demand and additional source capacity would be desirable. **As such, LCPS prudently established a target yield of 75 gpm for the HS-3 well based upon Chapter 1042 of the Loudoun County Ordinances, which indicates that the total capacity of all mechanical units (wells, other sources of supply or pumps) operating simultaneously shall be at least fifty percent more than the peak hourly demand.**

In accordance with FSM Section 6.240, an aquifer pump test was completed on the HS-3 well in January of 2007 via groundwater extraction at a rate of 75 gpm for 48 continuous hours. The estimated average daily extraction rate for the HS-3 facility is 7,500 gallons as determined from usage data from other Loudoun County High Schools. As such, the test design and resultant data represent highly stressed conditions (i.e. extraction of 108,000 gallons per day during the test) as compared to anticipated rates of groundwater use (7,500 gallons per day during facility occupation).

The results of the groundwater pump test indicate that the periodic groundwater extraction from the HS-3 well as required to meet the demands of the HS-3 facility can be accomplished at rates as high as 75 gpm with little significant impact to water resources. As a general best management practice (BMP) to alleviate potential well interference between the HS-3 and Elementary School (ES) well, a pumping schedule that alternates

between these two wells is recommended. Based upon the apparent and anticipated ability of these two (2) wells/waterworks to satisfy their respective daily usage demands within 2 to 4 hours, respectively, then alternating pumping schedules of 6, 8, or 12 hours would provide one or more hours of groundwater recovery in both wells simultaneously between the extraction events.

To respond to questions relative to simultaneous pumping of the ES and HS-3 wells, the maximum potential interference between the HS-3 and ES wells can be estimated as a cumulative drawdown impact as follows:

A calculated specific capacity of 0.65 gpm/ ft in the HS-3 well results in a drawdown of 115 feet at a pumping rate of 75 gpm, and a calculated specific capacity of 0.74 gpm/ft in the ES well results in a drawdown of 34 feet at a pumping rate of 25 gpm. As such, the calculated maximum cumulative effect of simultaneous pumping is a drawdown of 149 feet.

It is a general BMP to keep the pumping water level above the shallowest water-bearing fracture; and even at a maximum drawdown of 149 feet, this calculated pumping water level would remain above the shallowest water-bearing fractures at 187 feet and 240 feet below grade in the ES and HS-3 wells, respectively. Additionally, based upon the limited duration that simultaneous pumping would be necessary to meet daily demands, the simultaneous pumping water levels are anticipated to be less than the calculated maximum cumulative drawdown. As such, based upon the calculations presented herein, simultaneous pumping of the ES and HS-3 wells at rates of 25 and 75 gpm, respectively, could occur for durations necessary to satisfy the anticipated demands of the ES and HS-3 facilities. The evaluation of simultaneous pumping has been presented herein in response to questions on the matter; however, the recommendation stands for alternate pumping schedules in the ES and HS-3 wells as a prudent means to reduce potential well interference.

The highlighted sections of the February 21, 2007, Detailed Hydrogeologic Evaluation included in the packet of information submitted by the Town of Purcellville at the PCPH have been misinterpreted. We hope that we have cleared up any concerns the Town may have about the proposed water supply system. **In summary, there is a more than sufficient water supply, including fire protection capacity, to serve the proposed high school.**

Transportation:

Question: Is there funding for the proposed Town of Hillsboro round-about at Route 9 and Route 690?

This is a question better addressed by representatives from Loudoun County, the Virginia Department of Transportation, and the Town of Hillsboro. LCPS has been in contact with the Town of Hillsboro and offers the following. The Town has expressed an interest in a single lane round about as opposed to the two lane round recommended by VDOT. Preliminary estimates for a single lane round about indicate a construction cost of approximately $650,000.00. LCPS proposes to provide $97,500 (fair share contribution based on projected school related traffic) toward this improvement and suggests that the LCPS contributions for the non-school related improvements, $136,407, could also be applied to this round about. The total contribution would then be $233,907, or 35 % of the anticipated cost of the improvement desired by the Town. If the round about is not constructed, then Condition 3 provides for an alternate improvement to the intersection.

Question: How were the School contributions derived (for the non-school related improvements)?

The school contributions for the non-school related improvements represent a pro-rata share of the overall intersection improvement costs stated in the HS-3 traffic impact analysis. The percentage of HS-3 related traffic was calculated using the site traffic volumes shown in Figure 5 (page 11) and the total traffic volumes shown on Figures 6a and 6b (pages 12 and 13). Percentages were calculated for both the AM and PM peak periods, and then averaged to reach an overall percentage.
The tables below summarize this work:

Location	Improvements	Cost
Route 287 at Hirst Drive	SB Right Turn Lane Signal Upgrades	$ 425,000
Main Street/21st/23rd	Turn Lanes Traffic Signal	$ 325,000
Main Street at Hatcher	WB Right Turn Lane	$ 310,000
Route 7 at Route 287	Turn Lanes Traffic Signal	$ 475,000

	AM PEAK			PM PEAK		
Location	2008 Total	2008 School	AM %	2008 Total	2008 School	PM %
Route 287 at Hirst Drive	587	66	11%	467	21	5%
Main Street/21st/23rd	1,930	96	5%	1,777	67	4%
Main Street at Hatcher	149	44	30%	140	14	10%
Route 7 at Route 287	2,419	138	6%	2,065	104	5%

Location	Average %	Cost	School $
Route 287 at Hirst Drive	8.0%	$ 425,000	$ 33,657
Main Street/21st/23rd	4.5%	$ 325,000	$ 14,625
Main Street at Hatcher	20.0%	$ 310,000	$ 62,000
Route 7 at Route 287	5.5%	$ 475,000	$ 26,125
		TOTAL	***$ 136,407***

Question: The Town of Purcellville has raised questions regarding the difference in traffic counts included in the 2006 HS-3 traffic study versus the May 2005 traffic study prepared by Wells and Associates for the previously proposed high school location, east of Hamilton at the Nichols property? The suggestion was made that the Fields 2005 study assumes about 1/3 less traffic than the 2005 Hamilton study. The specific numbers cited were am peak of 452 (Fields) vs. 585 (Hamilton) and pm peak of 305 (Fields) vs. 413 (Hamilton).

The May 2005 Wells and Associates study cited reads as follows (page 28) – *"The proposed 1,600 student high school is anticipated to generate 585 AM peak hour trips, 413 school PM peak trips, 224 commuter PM peak trips, and 2,530 average daily trips."*

Note, that the directional distribution (entering or exiting) is not indicated above; only a total number is provided.

The table below is taken directly from the Fields Farm TIA (page 10) and includes and additional row showing the total number of trips.

Land Use	Year	Size	ADT	A.M. Peak Hour		P.M. Peak Hour	
				Enter	Exit	Enter	Exit
High School	2008	1,600 Students	2,736	452	204	143	305
TOTAL			**2,736**	**656**		**448**	

Therefore, the 2006 Fields Farm TIA actually uses a higher trip generation rate than the May 2005 Hamilton Study.

Question: The Town of Purcellville questioned whether the traffic study complies with the traffic scoping agreement, specifically items 1, 4, and 5.

Item #1 relates to the extent of the study area. Purcellville's documents from the 3-19-07 Planning Commission Public Hearing highlight *"external roads shall be included to the extent that the project's generated traffic constitutes at least 15 percent of the road's current/existing traffic volume."* Just prior to the highlighted area, the FSM Traffic

Study Guidelines also states *"Unless otherwise specifically identified by the County."* The County specifically identified the intersections to include in the study in Item #2.

It should be noted that Purcellville was contacted regarding the study area/intersections (the study scope was reviewed by their Public Works Committee) prior to finalization of the 12-point TIA sheet and every intersection the Town requested was included in the study.

Item #4 relates to the traffic volumes projections. The highlighted portions indicate *"the peak hour of the project should be added to the corresponding AM/PM existing peak hour of the adjacent roadway (to show the worst case scenario)."* The AM peak and PM peak trip generation rates for the generator (i.e. the school) were used to calculate the trip estimates for the site (see Table 1, page 10). These trips (Figure 5, page 10) were added to the projected 2008 background volumes (Figures 3a-3b, pages 7-8) for the respective AM and PM peak periods to calculated the 2008 total traffic projections (Figures 6a-6b, pages 12-13).

Item #5 relates to performing a capacity analysis for 10 years beyond the completion date of a project. This was addressed in George Phillips' (OTS) February 26, 2007 comments – *"although not specifically noted in the traffic scope, OTS staff noted that a build out plus 10 analysis was not necessary given that we already have adequate modeled forecasts in this area"*

In summary, the Fields Farm traffic impact analysis complies with the scoping agreement created jointly by the County and the Town of Purcellville.

Question: The Town of Purcellville has raised the question as to whether the study is "diluted" by assuming higher background?

No, the study is not being diluted. Given the 2008 study horizon and the 3% difference in growth rates being cited by the Town, an increase of 9 vehicles per 100 would be recognized. The highest volumes in the study area are noted on Route 7 and Route 9 with approximately 800-900 peak hour vehicles; this results in an additional 70 to 80 peak hour vehicles. Volumes of this magnitude would not change the findings of the study.

Also, the original study guidelines submitted to the Town showed a lower growth rate. In comments received from the Town on the original 12-point scoping agreement, Mr. Steve Plante (Purcellville staff) indicated the Town's consultant was using a 5% growth rate for the Main/Maple improvement projections

Question: The Town of Purcellville has stated that the trip distribution does not appear to be consistent with where the students are located.

The distribution of school-related traffic is based on the location of the potential student population and the available road network that links the students to the proposed high school.

The location of the anticipated student population was based on 2005 enrollment figures. All students were geocoded utilizing ARC-INFO, thus providing accurate data based on each students residential location. The student populations for grades 6, 7, 8, and 9 were used as a basis for the location of the students who would potentially be attending HS-3 in the fall of 2008. The table containing the respective student populations for each of the planning zones and corresponding map are provided in Appendix B of the Fields Farm traffic study.

Question: The Town of Purcellville has stated that the attendance boundary in the impact analysis is not the same as the attendance boundary recommended by staff to the LCSB. The comment is made that it is not necessarily the student numbers but where they are on the road system.

The attendance boundary used for the Fields Farm TIA is actually larger than the one recommended by staff to the LCSB. The study's attendance boundary included several planning zones to the east, mainly around Hamilton, that are not being recommended as part of the official attendance boundary. Thus the study analyzed a larger traffic network with more conservative assumptions to ensure the traffic impacts associated with the proposed school were thoroughly evaluated.

Question: Are there improvements (that do not currently exist today) that have been assumed to be in place as a part of the study? If so, what improvements? The Town cited Main Street and 32nd St, Main and Rt 287 and Main and 20th.

The 2005 and 2008 background traffic scenarios did not contain any road improvements. The 2008 total traffic analysis included those improvements listed in Table 4 of the Fields Farm TIA (included below for your convenience). The improvements listed are improvements that are warranted by either the projected background traffic or the projected high school traffic. The School Board proposes to construct those improvements that are warranted by school related traffic. Whether the Town, County or VDOT chooses to construct those improvements that are identified as background traffic is not a determination this Special Exception intends to make. The background traffic will be present with or without the school.

Table 4
Recommended Improvements

Location	Recommended Improvements	Improvements Warranted By	
		Background Traffic	High School Traffic
Harmony MS and Business Route 7	Install traffic signal	✓	
Business Route 7 and Route 287	Install traffic signal Add'l EB left turn lane	✓	
Route 287 and Hirst Drive	Traffic signal upgrade SB right turn lane EB right turn lane	✓	
Hirst Drive and Maple Avenue	NB right turn lane EB right turn lane WB left turn lane	✓	
Hirst Drive and Hatcher Avenue	SB left turn lane WB right turn lane		✓
Hirst Drive and Route 690 (Hillsboro Road)	SB left turn lane NB right turn lane	✓	
Route 690 and Allder School Road	Install 100' roundabout		✓
Route 690 and Route 9	Traffic signal upgrade EB right turn lane WB left turn lane		✓
Route 611 and Allder School Road	EB right turn lane		✓
Route 7 (Main Street) and 32nd Street	WB left turn lane	✓	
Route 7 (Main Street) and 23rd Street	EB left turn lane	✓	
Route 7 and 21st Street/20th Street/Route 690	Install traffic signal EB left turn lane WB right turn lane	✓	
Route 7 (Main Street) and Hatcher Avenue	EB left turn lane WB right turn lane	✓	
Allder School Road and HS Entrance	WB left turn lane		✓

Question: The Town of Purcellville has questioned the availability of pedestrian connections to adjacent neighborhoods and to the Town.

A pedestrian access plan is provided as a part of the Special Exception Plat. Pedestrian trails are provided along Allder School Road, extended to the Chestnut Hills Subdivision to the east, and extended to the south to the planned Upper Loudoun Youth Football League complex. The trails depicted on the ULYFL Special Exception plat are also shown. The trails will be extended to the outer edges of the property, consistent with County requirements.

Question: Bring a map of anticipated bus routes to serve the school.

A map will be provided at the Planning Commission Work Session. The following provides a description of the anticipated bus routes.

General Bus Traffic Flow for HS-3 at Fields Farm:

Overall: HS-3 will be paired with Harmony Intermediate (Middle) School. Western Loudoun busses pick up the middle and high school students together. The middle school will open first, thus the first morning drop-off and the first afternoon pick-up will be at Harmony.

Morning Bus Traffic Flow:

Busses from West: Collect the students, travel to the Route 7 By-Pass, travel east to Route 287, travel south to Business Route 7, travel east to Harmony. Drop off the middle school students. Travel west from Harmony to Route 287, travel north on Route 287 to Hirst Road, travel west on Hirst to Route 611 or Route 690 to Allder School Road and to the High School.

Busses from North: Collect the students, travel to Route 287 (via Route 9, the Route 7 bypass or directly onto Route 287 from the area roads), travel Route 287 south to Business Route 7, travel east to Harmony. Again, drop off the middle school students. Travel west from Harmony to Route 287, travel north on Route 287 to Hirst Road, travel west on Hirst to either Route 611 or Route 690 to Allder School Road and to the High School.

Afternoon Bus Traffic Flow:

Busses start at Harmony and basically reverse the route.

The route between Harmony and the High School is also shown on Figure 4 (page 10) of the Fields Farm TIA.

Notes:

In the first year of HS-3 opening, the senior class is "grandfathered" at Loudoun Valley. Bus traffic will need to continue to take these students to Valley, as they are doing now.

It is the intension of LCPS to avoid putting any regular bus traffic that would serve HS-3 and Harmony through downtown Purcellville. Busses would go around downtown by utilizing the bypass, Route 690, Hirst Road and Route 287. There is no need for Harmony/HS-3 traffic to go through the downtown.

The actual bus routes will be established and modified when the final HS-3 boundaries are adopted, as western Loudoun develops and as road links are constructed as a part of transportation improvements in the area. As with all bus routes in the County, when there are accidents or significant event congestion, the busses may travel alternate routes in order to deliver the students to school as efficiently as possible.

Question: How many students would LCPS expect to be driving?

Based on experience at Loudoun Valley High School, it is anticipated that approximately 52% of the juniors and seniors will seek parking permits. In 2006-07, 500 applications were filed for parking permits. The total number of juniors and seniors at Valley is 961.

Question: How many students could be expected to be driving the Route 287 corridor?

Utilizing the staff recommended HS-3 boundary, and the current geocoded student population locations, it is estimated that there are 220 driving age students that are located within the Rt. 287 corridor. Applying the 52% student driver figure, there would be approximately 115 students that would be expected to drive in the Route 287 corridor. A map depicting the planning zones included is provided at Attachment 4. How many of those students would utilize Rt. 287 south to the unpaved section of Route 611 is unknown. Alternate routes, such as going west on Route 9 and south on Route 690 or continuing south on Rt. 287 to Hirst are reasonable routes.

Question: Provide a map and list of the road improvements proposed and the cost of same. The request was also made as to how much of these costs LCPS would be paying.

Table 5 of the Field Farm TIA (see following page) listed the recommended road improvements and the associated cost estimates.

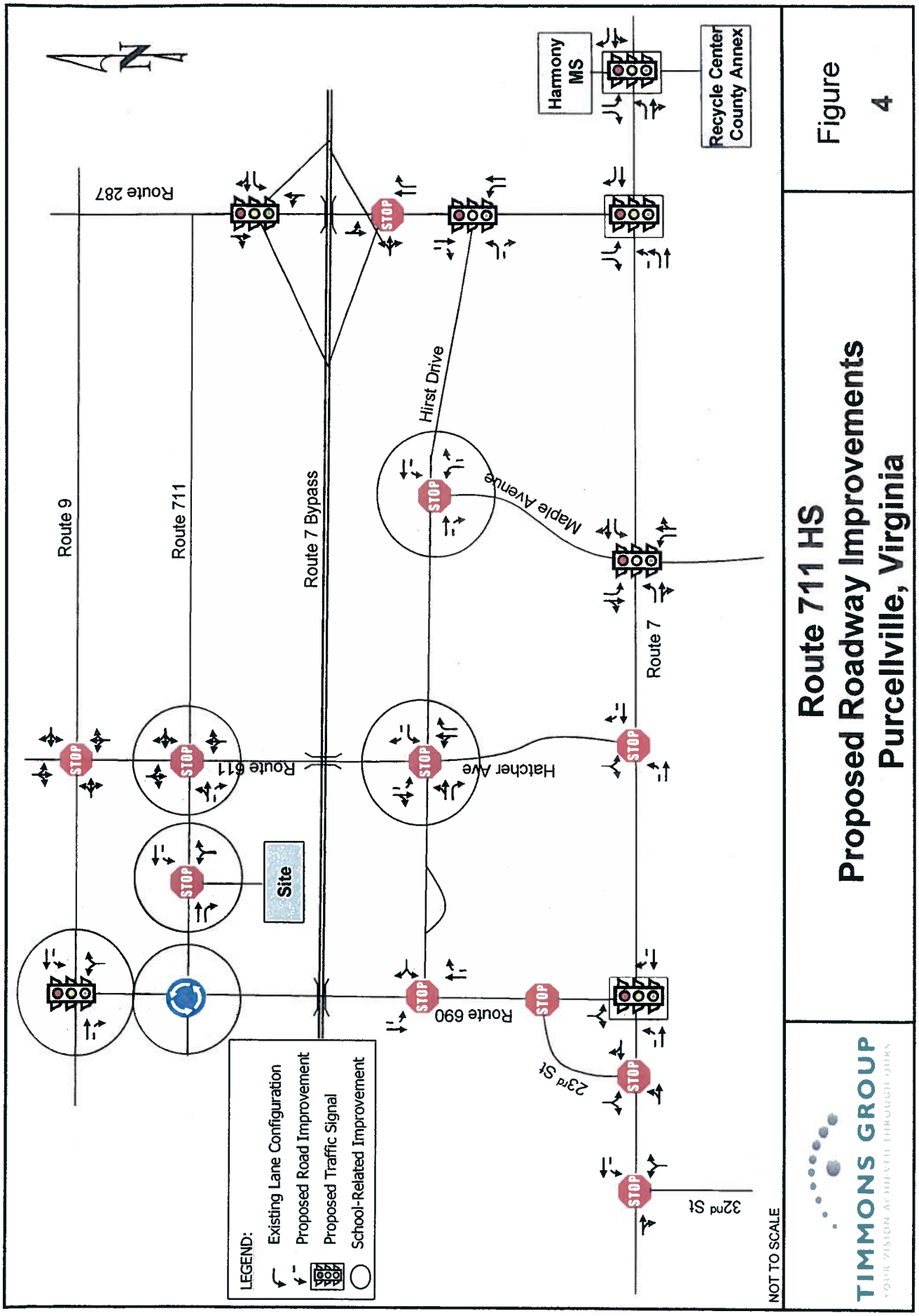
Three figures also follow (Figures 4, 5 & 6). These figures were submitted previously to the Town of Purcellville in response to their comments. Figure 4 illustrates all of the recommended improvements, Figure 5 illustrates those improvements warranted by

background traffic, and Figure 6 illustrates those improvements warranted by school-related traffic.

Table 5
Costs of Recommended Improvements

Location	Recommended Improvements	Estimated Costs
Non-School Related Improvements		
Harmony MS and Business Route 7	Install traffic signal	$ 250,000
Route 287 and Hirst Drive	SB right turn lane EB right turn lane Traffic signal upgrade	$ 550,000
Hirst Drive and Maple Avenue	NB right turn lane EB right turn lane WB left turn lane	$ 525,000
Hirst Drive and Route 690 (Hillsboro Road)	SB left turn lane NB right turn lane	$ 475,000
Business Route 7 and Route 287	*Install traffic signal* *Add'l EB left turn lane*	*$ 475,000*
Route 7 (Main Street) and 32nd Street	*WB left turn lane*	*$ 425,000*
Route 7 (Main Street) and Hatcher Avenue	*EB left turn lane* *WB right turn lane*	*$ 310,000*
Route 7 and 21st Street/20th Street/Route 690	*Install traffic signal* *EB left turn lane* *WB right turn lane*	*$ 325,000*
	Total	**$ 3,335,000**
School Related Improvements		
Hirst Drive and Hatcher Avenue	SB left turn lane WB right turn lane	$ 225,000
Route 690 and Allder School Road	Install 100' roundabout	$ 200,000
Route 690 and Route 9	Traffic signal upgrade EB right turn lane WB left turn lane	$ 700,000
Route 611 and Allder School Road	EB right turn lane	$ 100,000
Allder School Road and HS/ES Entrance	WB left turn lane	$ 200,000
	Total	**$ 1,425,000**

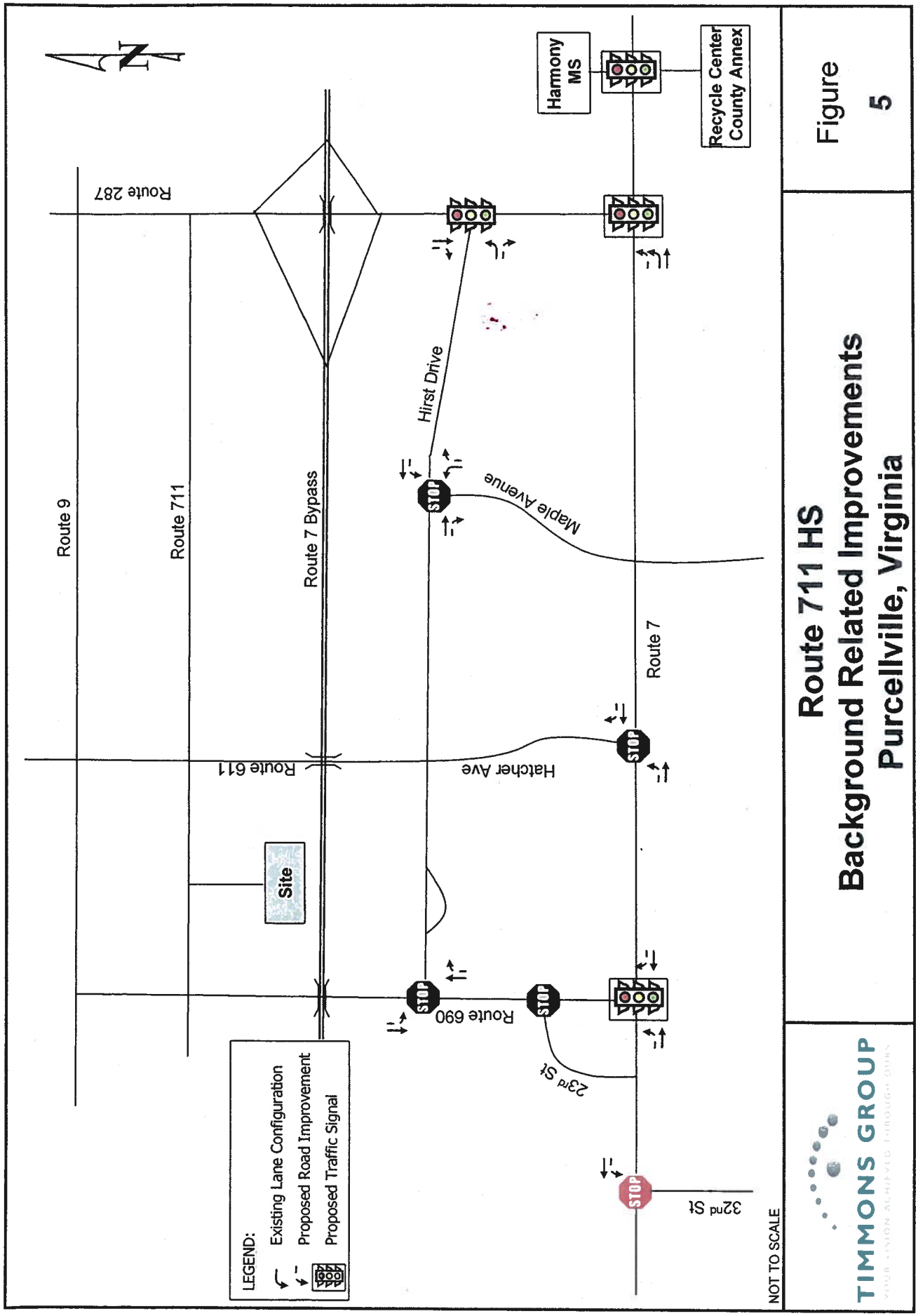
A-21

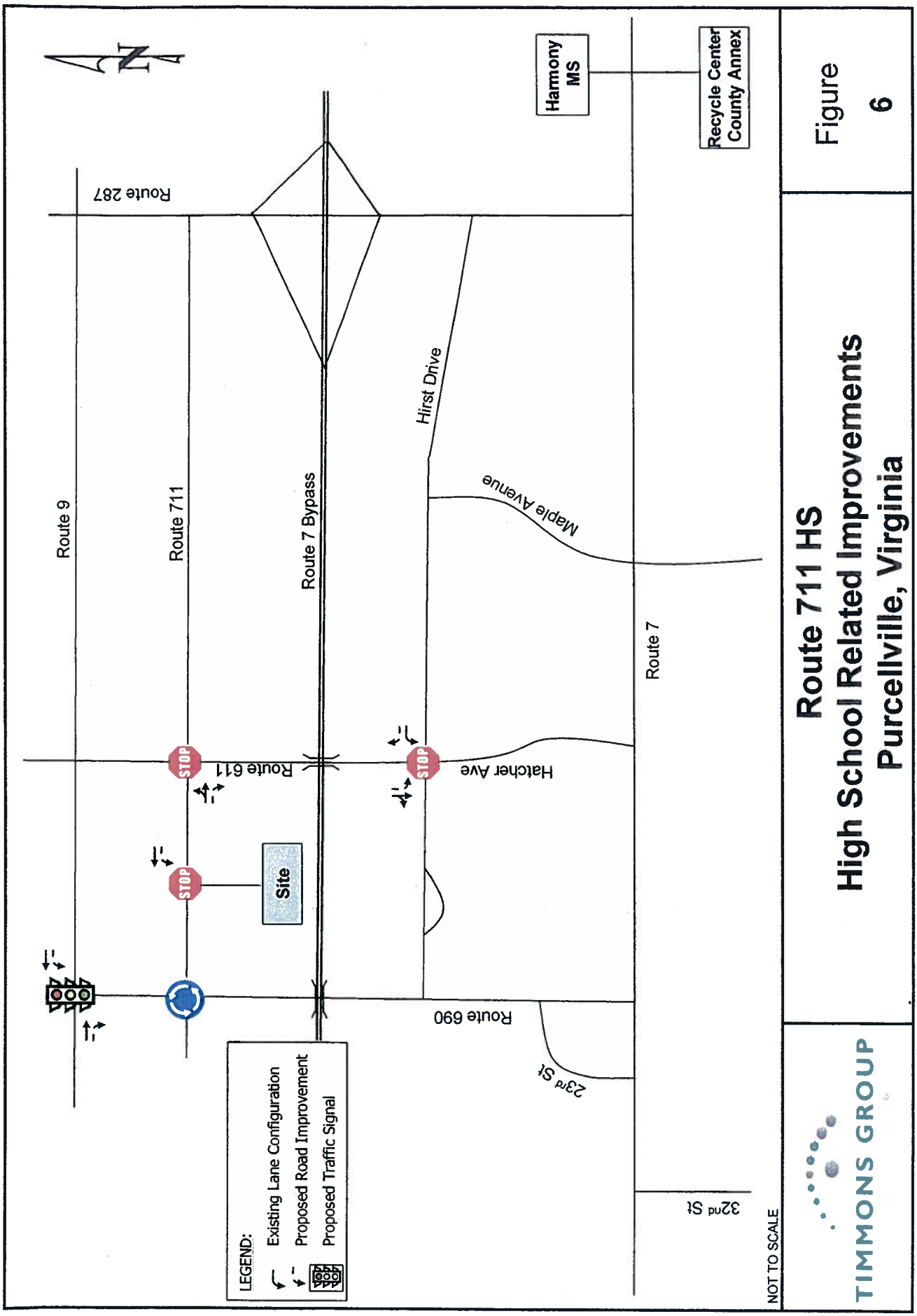


Route 711 HS
Proposed Roadway Improvements
Purcellville, Virginia

Figure 4

TIMMONS GROUP


Route 9
Route 711
Route 7 Bypass
Route 287
Harmony MS
Recycle Center
County Annex
Hirst Drive
Maple Avenue
Route 7
Hatcher Ave
Route 611
Site
Route 690
23rd St
32nd St
STOP
LEGEND:
Existing Lane Configuration
Proposed Road Improvement
Proposed Traffic Signal
NOT TO SCALE
Route 711 HS
Background Related Improvements
Purcellville, Virginia
Figure
5
TIMMONS GROUP


Route 287
Route 9
Route 711
Route 7 Bypass
Hirst Drive
Maple Avenue
Harmony MS
Recycle Center County Annex
Route 7
Route 611
Hatcher Ave
Site
Route 690
23rd St
32nd St
STOP
LEGEND:
Existing Lane Configuration
Proposed Road Improvement
Proposed Traffic Signal
NOT TO SCALE
TIMMONS GROUP
Route 711 HS
High School Related Improvements
Purcellville, Virginia
Figure
6

Question: Provide a cost estimate for paving Allder School Road

In February of 2005 an estimate for this improvement was provided. The estimate consisted of four basic categories: engineering, construction, right of way, and utility relocations. In the two years since February 2005, it is fair to say that some things have gone up in price (land values) and some things have gone down. Utilizing an average of 4% increase per year for two years the cost of the improvement in today's dollars is estimated at $8.72 million.

Question: What is the total population projected at the school site: students, faculty and visitors and how does that relate to the traffic study?

Trip generation estimates for the proposed school were calculated using the number of students (1,600) as the independent variable; this is as the most reliable approach. The Institute of Traffic Engineers (ITE) rates used to calculate these estimates are derived from various field studies at other similar facilities. The presence of faculty, visitors, deliveries, etc are built into these standard rates and the resulting trip generation estimates.

The proposed student capacity for HS-3 is 1600 and the anticipated number of faculty/staff is 200 for a total of 1800. Visitors will vary depending on the activities of the day or sporting events. At Loudoun Valley High School there are 25 visitor parking spaces which are reported to have open spaces during the course of the school day. As noted above, the ITE rates are an accepted approach to traffic projections and take into account the various school related activities. The TIA for Fields Farm projects 2,736 average daily trips, 656 a.m. peak and 448 p.m. peak trips.

Question: Is there a traffic study for the ULYFL and will there be concurrent traffic for the two facilities: HS-3 and the ULYFL?

A separate traffic study was prepared in December 2002 for the ULYFL and the proposed park. That study included analysis of a 5:00-7:00 PM weekday peak and a 10:00 AM to 2:00 PM Saturday peak. The parameters of this study were provided jointly by the Office of Transportation Services and the Department of Parks and Recreation.

The Special Exception Conditions for the Upper Loudoun Youth Football League recreational facilities (SPEX 2004-0009) provides that the hours of operation shall be Monday through Saturday 8 AM to 11 PM. and Sunday 11 AM to 11 PM. The ULYFL home page indicates team practices are held between the 5:30 and 8:00 PM for approximately 1 to 2 hours. The contact football games themselves are scheduled to occur on Saturdays, with several weekday games; flag football games are scheduled for Fridays.

This information indicates that the peaks for the respective uses separate with respect to typical daily operations. It is recognized that the potential exists for some overlap of the traffic flows associated with the proposed uses, but it should also be noted that the entrances to the two facilities are approximately 2 miles apart, further minimizing the potential impacts that the traffic may have on one another.

Question: Why is staff not recommending the advancement of the Rt. 690/Rt 7 interchange? Environmental perspective regarding fuel costs, shorten trips, etc.

While this question has been directed to staff, LCPS would note that the Route 690/Route 7 interchange is a regional improvement warranted by background traffic, not the proposed high school.

Based on the proposed attendance boundary, it is anticipated that the requested interchange would be primarily used by those students and parents residing to the west of the Town of Purcellville. The location information provided by LCPS indicates that approximately 20% of the student body will originate from Round Hill and the vicinity. This translates into approximately 600 total vehicle trips per day and 130 vehicle trips during the AM peak. Volumes of this magnitude may require the installation of an auxiliary turn lane in some instances, but they are far from requiring the construction of a regional interchange that would likely handle 20,000-30,000 vehicles per day.

Environmental:

Question: What is the status of the prior environmental assessment conducted on the property? Earlier reports had shown contaminants from the prior farming operations. Have these contaminants been properly managed?

A brief synopsis of environmental site evaluations is provided herein based upon the following list of references:

Earth Tech, June 2000, Draft Phase I Environmental Site Assessment, Fields Property, Purcellville, Virginia.

Earth Tech, September 2000, Phase II Environmental Site Assessment, Fields Property, Purcellville, Virginia.

Triad Engineering, Inc., July 2006, Report of Phase I Environmental Site Assessment, Approximate 144-Acre Portion of the Fields Property, Loudoun County, Virginia.

Triad Engineering, Inc., September 2006, Report of Underground Storage Tank Closures, Former Fields Property, Loudoun County, Virginia.

Triad Engineering, Inc., October 2006, Limited Site Characterization Report, Former Fields Property, Loudoun County, Virginia, VDEQ Case # 2007-3037.

Triad Engineering, Inc., September 2006, Preliminary Hydrogeologic Evaluation, Approximate 145-Acre Portion of the Fields Property, Loudoun County, Virginia.

Triad Engineering, Inc., February 2007, Detailed Hydrogeologic Evaluation, Loudoun County High School Site (HS-3), Loudoun County, Virginia.

Phase I and II Environmental Site Assessments (ESAs) were completed for the site by Earth Tech in June and September 2000. The results of the Earth Tech's Phase II ESA brought resolution to the following site conditions: dump area near Allder School Road, dump area near the western property boundary, previously removed fuel tanks, fill area, failed drain field, cow burial area, and open well head. Resolution to those issues was achieved via risk analysis, the apparent removal of the major former site dump areas, and implementation of a sampling and analysis plan that resulted in no significant detection of potential contaminants of concern with only minor Total Petroleum Hydrocarbons (TPH) and Toluene detected in a portion of site surface water samples.

TRIAD completed an updated Phase I Environmental Site Assessment (ESA) for the site in July 2006 which resulted in the detection of two (2) previously unidentified Underground Storage Tanks (USTs) that were apparently formerly utilized for the storage of home heating oil at the abandoned site residences. The subject USTs were closed via removal, and abatement and site characterization activity were completed in accordance with Virginia Department of Environmental Quality (VDEQ) protocol and documented in a Limited Site Characterization Report (SCR) dated October 11, 2006. In letter dated November 8, 2006, the VDEQ closed the subject case (PC#2007-3037) because "contamination levels at the site do not represent an identified risk to human health and the environment."

Relative to specific questions the Planning Commission may have relative to chemical containers on the site; TRIAD indicated in its Phase I ESA dated July 24, 2006 that general debris, empty drums and containers, tires, and an abandoned car are located in and throughout the area immediately surrounding the abandoned site structures; however, a visual inspection of this debris did not indicate any conditions which would pose a significant risk to the environmental integrity of the subject site at the present time. In other words the debris did not meet the definition of a recognized environmental condition (REC) as defined by ASTM standard, where an REC is defined as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies".

Historic:

Question: What are the details on the Fields Farm House and why is this structure not being recommended for preservation? Other project structures in deteriorated condition were noted as having been rebuilt.

Response: Edna Johnston of History Matters responded to this question at the public hearing. The following is a summary of her comments along with an explanation of the criteria used to determine if a property is eligible for listing on the National Register of Historic Places.

In 2003 URS Corporation conducted a survey of a number of properties in Loudoun County including the Fields Farm. The survey form prepared by URS notes that the primary resource, an 1875 dwelling, was in "ruinous" condition at this time. With the exception of two circa 1945 silos, a 1950 granary and a 1965 dwelling which were listed in good to fair condition, many of the outbuildings were in ruinous, poor or fair condition in 2003. URS concluded that the property (meaning the house and the assorted collection of outbuildings) might be a good example of a dairy farm from this era because the property contained a number of different types of buildings from different time periods in its history. A recommendation for an intensive level architectural survey was made to determine if the property was eligible for listing in the National Register under Criterion C. The recommendation was made for the overall farm as opposed to any individual structure and focused on the collection of structures which could potentially illustrate how dairy farming evolved in Loudoun County in the 19th and 20th centuries.

In order for properties to be eligible for listing on the National Register of Historic Places, properties that are older than fifty years must be nominated on at least one of the following criteria:

A. they are associated with events that have made a significant contribution to the broad patterns of our history; or
B. they are associated with the lives of persons significant in our past; or
C. they embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. they have yielded or may be likely to yield information important in prehistory or history.

In addition, to be successful, nominated properties must retain enough physical integrity (be in good enough shape) to effectively convey the applicable criteria.

In 2006, History Matters conducted a reconnaissance-level survey of the property and found that the property did not possess the physical integrity to convey its historical or architectural context and thus, in their opinion, was unlikely to be eligible for listing on the National Register. Portions of the primary dwelling were collapsed or removed and several other outbuildings had either collapsed or were in various states of deterioration. In a letter dated September 6, 2006, the Virginia Department of Historic Resources concurred with the recommendation of History Matters. No further investigation of the Fields Farm complex was recommended.

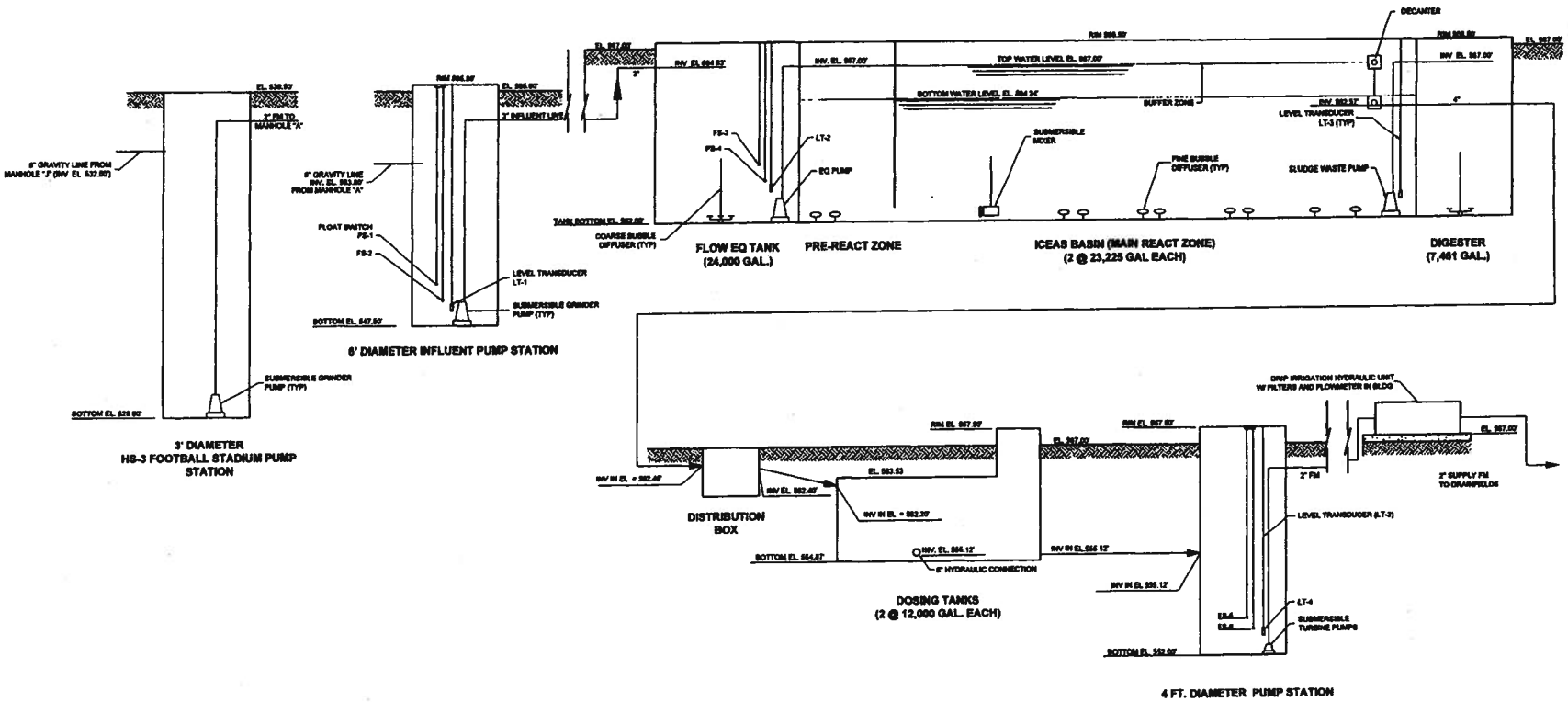
At the recommendation of County staff, Loudoun County Public Schools will provide an interpretative display on the property to preserve the Farm's history. The staff suggested that the spring house be considered for preservation. In working with History Matters, the LCPS consultant has recommended that the spring house be part of a display that explains the specific history of the site as well as the history and culture of farming in Loudoun County in the 19th and 20th centuries. LCPS will work with the County to provide the memorialization of the farmstead as recommended in Condition 20.

School Population: Provide the capacity and enrollment of other Loudoun County High Schools and identify which schools are utilizing trailers.

Response: Attachment 5 provides a list of the County's ten high schools and associated middle schools with the grades enrolled, the September 29, 2006 enrollment, and program capacity. There are two high schools in the County utilizing trailers, Broad Run and Loudoun Valley. A copy of the Loudoun County Public Schools Capital Improvements Program for FY 2008-FY2012 is also provided to the Planning Commission.

Attachments:

1. Wastewater Treatment System Hydraulic Profile
2. Wastewater Treatment Comparison
3. Board of Supervisors 10/4/05 Action Item and Excerpt from Board Minutes
4. Student Driver Planning Zones for Route 287 Corridor
5. LCPS Secondary Schools 2006-07 Enrollment and Capacity Summary



HYDRAULIC PROFILE

NOT TO SCALE

OPERATING LEVELS OF PUMPS

LT-1 SETTINGS:
- PUMPS OFF EL. = 549.00
- LEAD PUMP ON = 550.00
- LAG PUMP ON EL. = 551.00
- HIGH WATER ALARM EL. = 552.00

FS-1 BACKUP HIGH WATER ALARM EL. = 552.50
FS-2 BACKUP LOW LEVEL PUMP OFF EL. = 548.50

LT-2 SETTINGS:
- PUMPS OFF EL. = 863.00
- LEAD PUMP ON = 863.63
- LAG PUMP ON EL. = 861.33
- HIGH WATER ALARM EL. = 863.33

FS-3 BACKUP HIGH WATER ALARM EL. = 863.83
FS-4 BACKUP LOW LEVEL PUMP OFF EL. = 862.50

LT-4 SETTINGS:
- PUMPS OFF EL. = 866.12
- LEAD PUMP ON = 866.12
- LEVEL INDICATION EL. = 859.12
- HIGH WATER ALARM EL. = 860.12

FS-5 BACKUP HIGH WATER ALARM EL. = 860.62
FS-6 BACKUP LOW LEVEL PUMP OFF EL. = 854.62

BEFORE DIGGING CALL "MISS UTILITY" OF VIRGINIA AT 1-800-552-7001

Bury+Partners
ENGINEERING SOLUTIONS
[illegible]

COMMONWEALTH OF VIRGINIA
JESSICA M. KIRKPATRICK
No. 036769
PROFESSIONAL ENGINEER

HYDRAULIC PROFILE

FIELDS HIGH SCHOOL
SEPTIC SYSTEM
LOUDOUN COUNTY
VIRGINIA

PLOTTING SCALE: AS NOTED
DATE PLOTTED:
FILE: HYDRAULIC PROFILE
DRAWN BY: DJA
DESIGNED BY: JMK
REVIEWED BY:
PROJECT NO.: 21348-A001

SHEET
M3
OF

ATTACHMENT 1

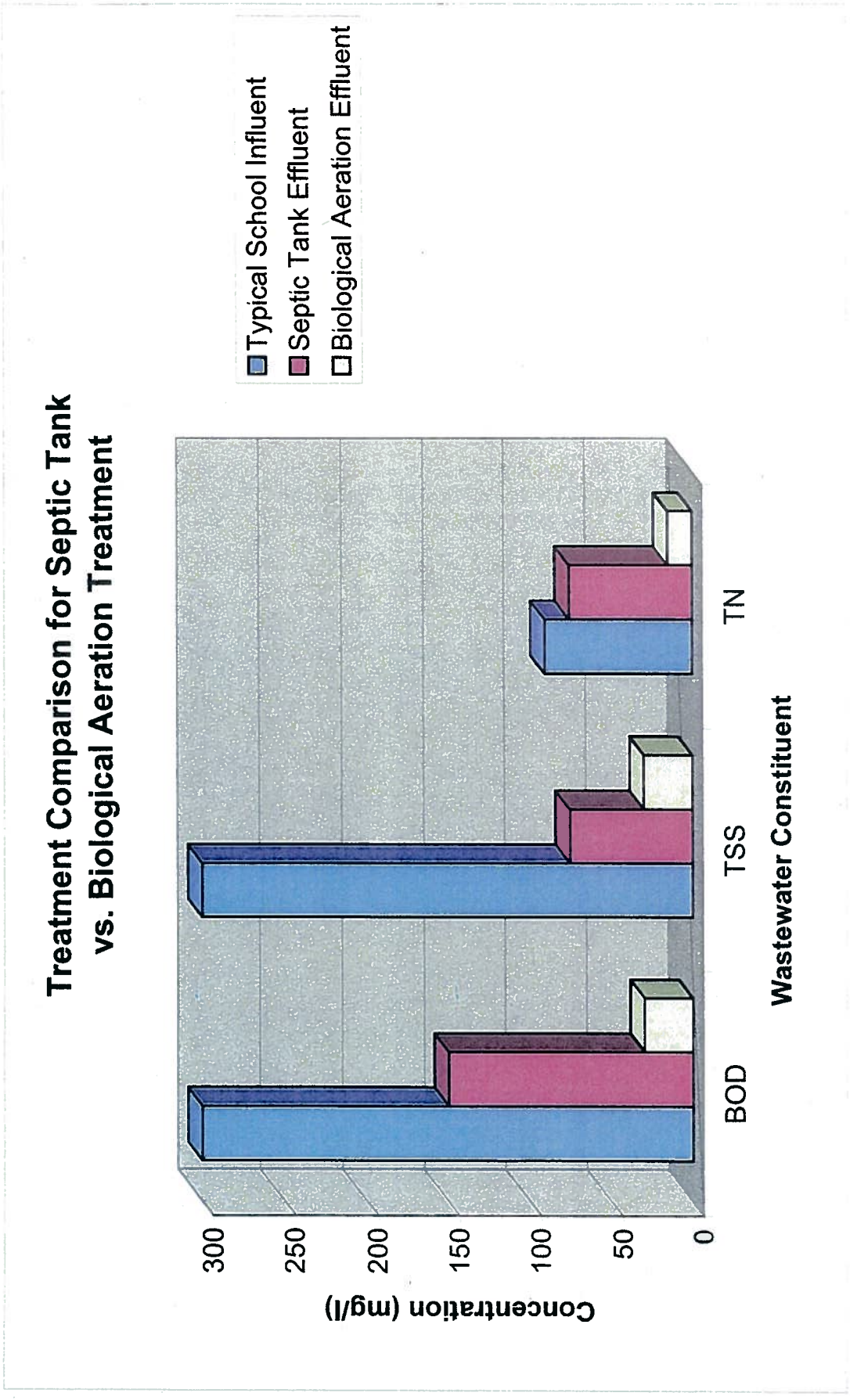
A-36

	5-Day Biological Oxygen Demand, BOD (mg/l)	Total Suspended Solids, TSS (mg/l)	Total Nitrogen, TN (mg/l)	Fecal Coliform No./100 mL
Typical School Influent	300	300	90	1.00E+07
Septic Tank Effluent	150	75	75	1.00E+06
Biological Aeration Effluent	30	30	15	1.00E+03

Note: The removal rates used above are based on information taken from US EPA. "Onsite Wastewater Treatment Systems Manual," EPA/625/R-00/0008 February 2002, and Crites, R. & G. Tchobanoglous. *Small and Decentralized Wastewater Management Systems* 1998

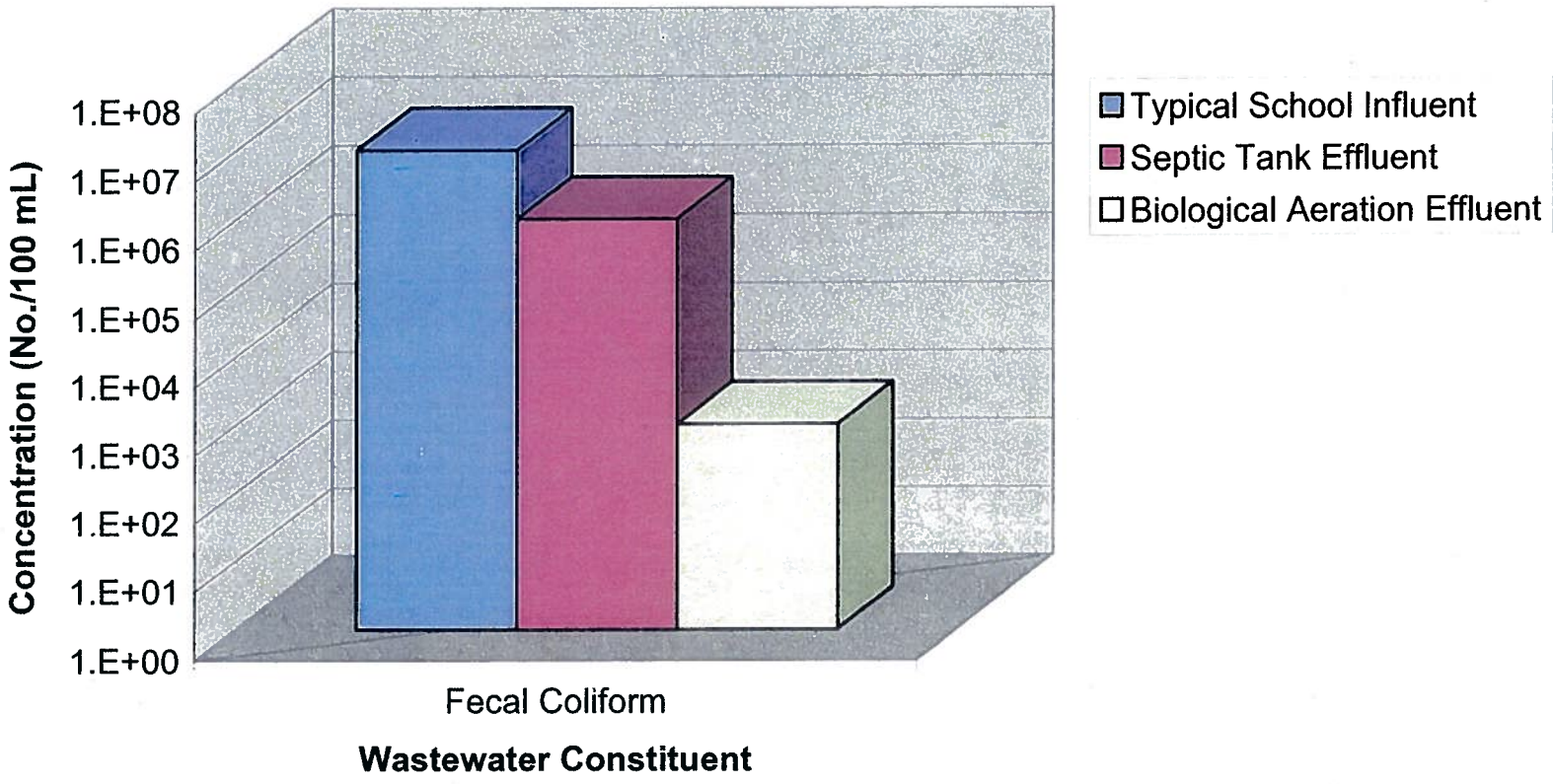
ATTACHMENT 2

A-31



ATTACHMENT 2
(continued)

Treatment Comparison for Septic Tank vs. Biological Aeration Treatment



Date of Meeting: 4 October 2005

LOUDOUN COUNTY BOARD OF SUPERVISORS
ACTION ITEM
BOARD MEMBER INITIATIVE

14 .

SUBJECT: Request Temporary Pump and Haul to Serve the ULYFL Stadium at the Fiellds Property
L.C.T.M. /35//////21-1/
PIN: 522-29-5928
Address: 36869 Allder School Rd. Purcellville

INITIATED BY: Jim Burton

ELECTION DISTRICT: Blue Ridge

Reviewed by Staff:
Yes X
No

BACKGROUND:
The County is working with ULYFL to partner with the league by providing land for a league-funded youth football stadium to be located in the southern portion of the Fields Property in Purcellville. The project lies outside of the Town limits but is subject to the Purcellville Urban Growth Area Management Plan. The project is also the subject of SPEX 2004-0009, which was approved by the Board of Supervisors June 16, 2005. Engineering studies, in cooperation with the health department, are underway to confirm the potential to serve Mountainview Elementary School, the ULYFL Stadium, and a future high school with onsite wastewater treatment. Town utilities are not available to the site at this time. Permission to operate a temporary pump and haul would allow the agreement between the County and ULYFL to be finalized and allow the project to keep moving forward. Alternative means of serving the project would continue to be pursued including an onsite treatment system or connection to Town of Purcellville public utilities. The ULYFL plans to begin construction of the stadium in the Spring of 2006 pending site plan approval. The pump and haul system would be installed during the construction phase of the project.

FISCAL IMPACT:

The costs of constructing pump and haul facilities and all operating costs would be borne by the ULYFL.

DRAFT MOTION:

1a. I move that the Board of Supervisors approve a temporary pump and haul, with a reservation for the drainfield if needed as a long term solution, for the ULYFA Stadium located on the Fields Property in Purcellville, Virginia, subject to all costs being borne by the ULYFL.

-OR-

1b. Alternate Motion.

ATTACHMENTS:

1. Vicinity Map
2. Virginia Dept of Health Sewage Regulations - Pump and Haul

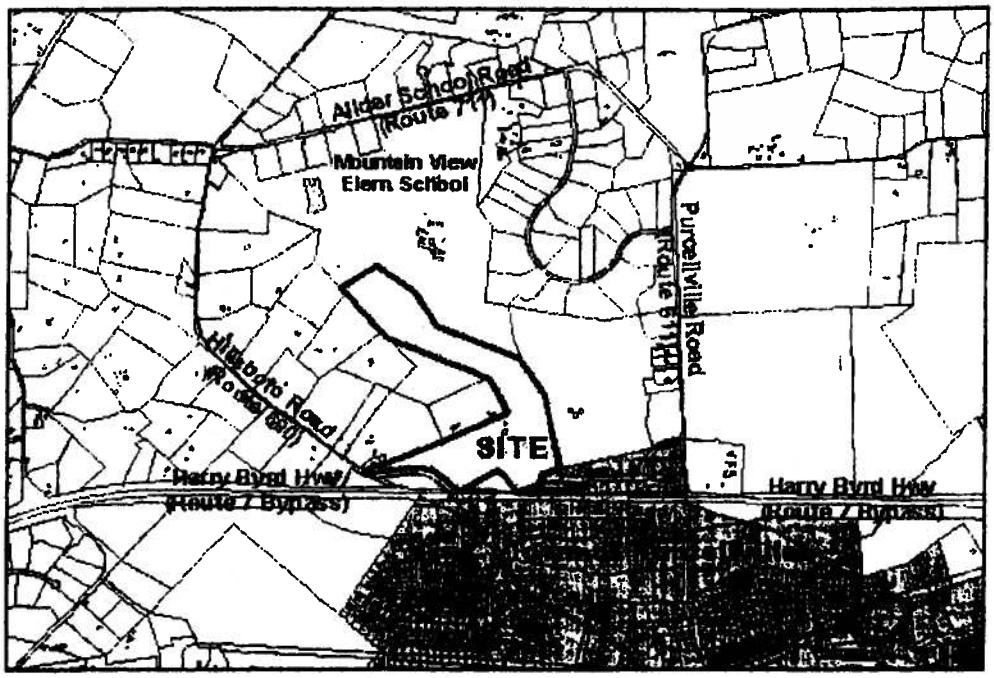
STAFF CONTACT: Mary M. Bathory Vidaver

Board initiative

VICINITY MAP – ATTACHMENT 1

N

VICINITY MAP



Directions:
From Leesburg, take Route 7 (Harry Byrd Highway) west to the Route 287 exit in Purcellville. Turn left (south) on Route 287, proceed under the Route 7 overpass, and turn right on Hirst Road. Proceed west on Hirst Road until it ends at Route 690 (21st Street North/Hillsboro Road). Turn right (north) on Route 690, and proceed across the bridge over Route 7. The site is on the right, immediately north of Route 7. Access to the site is via the existing driveway under the Centerfield Farm sign.

ATTACHMENT 3
(continued)

Va. Dept. of Health Sewage Handling & Disposal Regulations/Pump & Haul
ATTACHMENT 2

Virginia Department of Health - Sewage Handling and Disposal Regulations

TITLE 12. HEALTH
Title of Regulation: 12 VAC 5-610-10 et seq. Sewage Handling and Disposal Regulations.
PART IV
General Criteria for the Selection of a Wastewater Treatment and Disposal System Based on Site Conditions
Article 4: Pump and Haul of Sewage, P 32

12 VAC 5-610-598. General.
Pump and haul pertains to an unusual circumstance wherein sewage is permitted to be transported by vehicle to a point of disposal. Pump and haul includes all facilities and appurtenances necessary to collect and store the sewage for handling by a contractor having a valid sewage handling permit.

12 VAC 5-610-599. Permanent pumping and hauling.
Pumping and hauling on a permanent basis is prohibited unless done under the auspices and supervision of a government entity as provided for in 12 VAC 5-610-599.3 (see subdivision 2 of 12 VAC 5-610-410 for exception). Pumping and hauling for over one year shall be considered as a permanent pumping and hauling operation.

12 VAC 5-610-599.1. Emergency pumping and hauling.
When serious malfunctioning of an existing sewage disposal system, sewerage system or treatment works occurs, pumping and hauling may be authorized for a definite time period until the malfunctioning system can be reconstructed or repaired.

12 VAC 5-610-599.2. Temporary pumping and hauling.
Temporary pumping and hauling may be permitted under the following conditions:
1. It must be demonstrated that the temporary pumping and hauling of sewage is not the usual practice in order to permit premature and unplanned real estate or commercial development in an area where sewerage facilities do not exist;
2. Construction of an approved sewerage system or treatment works is actively in progress with personnel and machinery at work in the particular area. Bonding, cash escrow or other assurances shall be required to guarantee completion of the sewerage system and/or treatment works;
3. The completion of the sewerage system or treatment works is assured and a completion date within the definition of temporary pumping and hauling has been set; and
4. Any and all delays from the anticipated completion date shall be reported immediately by the holder of the pump and haul permit to the district or local health department. Delays not resulting from circumstances beyond the control of the holder of the pump and haul permit shall be grounds for revocation of the pump and haul permit.

12 VAC 5-610-599.3. Permanent pump and haul.
Permanent pumping and hauling of sewage may be permitted under the following conditions:
1. That the government entity enter into a contract with the department setting forth that the government entity will provide pump and haul services, either directly or through a private contractor holding a sewage handling permit, to the home(s), commercial establishment(s) or occupied structure(s) for the period the occupied structure is utilized or until connection can be made to an approved sewerage facility;
2. Upon completion of the contract between the department and the government entity, the commissioner shall issue a single pump and haul permit to the government entity. A separate construction permit shall be issued to the government entity for each sewage storage facility. The sewage storage facility(s) shall be designed and constructed in accordance with Article 7 (12 VAC 5-610-990 et seq.) of Part V of this chapter; and
3. When the government entity provides the sewage pump and haul services, it shall conform to the conditions contained in 12 VAC 5-610-380 and Article 8 (12 VAC 5-610-1020 et seq.) of Part V of this chapter.

Excerpt
10/4/05
BOS Minutes

IN RE: BOARD MEMBER INITIATIVE / REQUEST ~~TEMPORARY~~ PERMANENT PUMP AND HAUL TO SERVE THE ULYFL STADIUM AT THE FIELDS PROPERTY, L.C.T.M. /35/////21-1/, PIN: 522-29-5928, ADDRESS: 36869 ALLDER SCHOOL ROAD, PURCELLVILLE

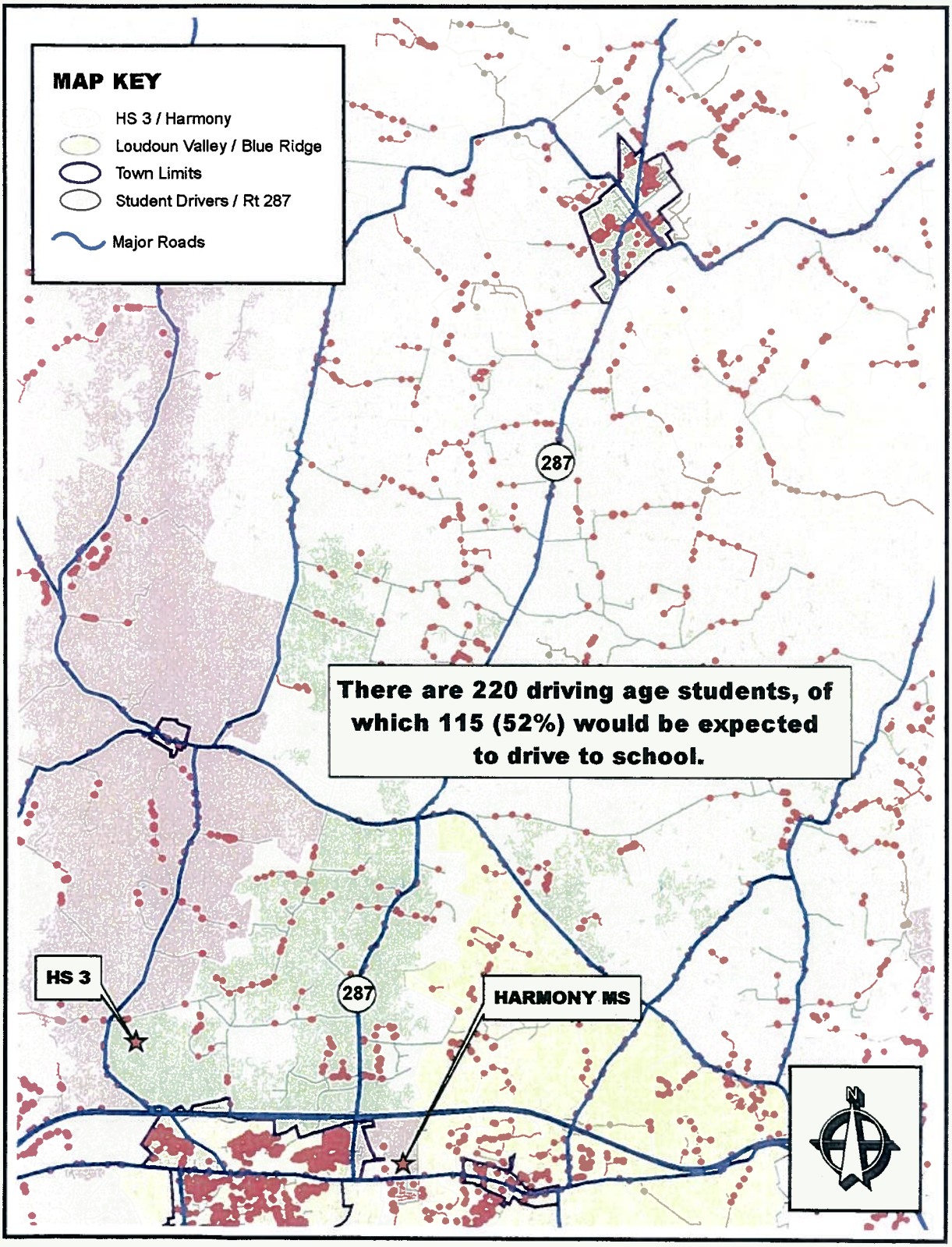
Supervisor Burton moved that the Board of Supervisors approve a permanent pump and haul, with a reservation for the drainfield if needed as a long term solution, for the ULYFL Stadium located on the Fields Property in Purcellville, Virginia, subject to all costs being borne by the ULYFL. Seconded by Supervisor Clem.

Several Board members questioned the change of the request from "temporary" to "permanent" pump and haul.

Supervisor Burton accepted Chairman York's friendly amendment to the motion to include an annual review of this pump and haul.

Supervisor Burton's motion passed 9-0.

HS-3 POTENTIAL STUDENT DRIVERS -Route 287 Corridor



Prepared by LOUDOUN COUNTY PUBLIC SCHOOLS Department of Planning and Legislative Services 3/2007.

ATTACHMENT 4

A-39

LOUDOUN COUNTY PUBLIC SCHOOLS
SECONDARY SCHOOLS 2006-07 ENROLLMENT AND PROGRAM CAPACITY

	2006-07 GRADES ENROLLED	9/29/2006 ACTUAL ENROLLMENT	2006-07 PROGRAM CAPACITY
Briar Woods High School	9-12	808	1595
Eagle Ridge Middle School	6-8	1075	1112
Broad Run High School +	9-12	1415	1672 (1486 w/o 9 trailers)
Farmwell Station Middle School +	6-8	1067	1159 (1121 w/o 2 trailers)
Dominion High School	9-12	1221	1328
Seneca Ridge Middle School	6-8	888	1121
Freedom High School	9-12	908	1598
Mercer Middle School	6-8	1117	1121
Heritage High School	9-12	1617	1618
Harper Park Middle School	6-8	829	1112
Loudoun County High School	9-12	1342	1393
J. Lupton Simpson Middle School	6-8	772	1046
Smart's Mill Middle School	6-8	858	1092
Loudoun Valley High School +	10-12	1513	1551 (1344 w/o 10 trailers)
Harmony Intermediate School	8-9	1100	1130
Blue Ridge Middle School +	6-7	1082	1159 (1084 w/o 4 trailers)
Park View High School	9-12	1310	1406
Sterling Middle School	6-8	857	1106
Potomac Falls High School	9-12	1488	1382
River Bend Middle School	6-8	1088	1112
Stone Bridge High School	9-12	1635	1618
Belmont Ridge Middle School	6-8	1124	1149

+ Trailers on site providing a temporary increase in building program capacity

LCPS Department of Planning and Legislative Services
3/22/2007

ATTACHMENT 5

A-40

Loudoun County Health Department

P.O. Box 7000
Leesburg VA 20177-7000

Environmental Health
Phone: 703 / 777-0234
Fax: 703 / 771-5023

Community Health
Phone: 703 / 777-0236
Fax: 703 / 771-5393

Memorandum

To: Rodion Iwanczuk, Senior Planner

From: Alan Brewer, Environmental Health Manager
Loudoun County Health Department

Date: April 4, 2007

RE: Proposed Western Loudoun High School
Planning Commission Request
Request For Information: "alternative wastewater treatment system"

It is my understanding that during consideration of SPEX 2006-0022, a Planning Commissioner requested that the Loudoun County Health Department or the County Attorney provide information to the commission concerning the term "alternative wastewater treatment system" as used in the Purcellville Urban Growth Area Management Plan (PUGAMP).

The Loudoun County Health Department is not aware of a definition for alternative wastewater treatment system in the Code of Virginia, Sewage Handling and Disposal Regulations (state regulations), or Chapter 1066 of the Loudoun County Codified Ordinance (county ordinance). The closest term in the state code is "alternative discharging system". This type of system involves surface discharge of treated effluent. The proposed high school is not proposing to utilize this method of sewage effluent disposal.

In 2000, the state health regulations were revised to permit various types of onsite sewage disposal systems other than what has been commonly referred to as conventional septic systems. These systems typically involve treatment and various methods of subsurface disposal. If properly operated and maintained, they can be better in safeguarding the public health than the so-called conventional systems. These types of technology are utilized in western Loudoun County, including in the PUGAMP area.

Va. Code § 15.2-2157 includes a 2005 amendment adding the term "nonconventional sewage disposal system", which includes various types of onsite sewage disposal

systems. House Bill 3134, approved during the 2007 legislative session, includes the term "alternative onsite sewage system", defined as a sewage or wastewater treatment and dispersal system that is an alternative to a conventional onsite sewage system for which the Board of Health may issue a permit authorizing construction and operation that includes different or additional components than those typically used in a conventional onsite system. This includes but is not limited to aerobic treatment units, media or packed bed filters, low pressure dispersal, spray irrigation dispersal or drip dispersal, mounds, privy, holding tanks for pump and haul, commercial , conditional, and experimental permitted systems. The Loudoun County Health Department proposed similar terminology in draft amendments to Chapter 1066 Codified Ordinances of Loudoun County. To date, these amendments have not been adopted.

Please let me know if you need additional information.

PC: Jack Roberts, County Attorney

Route 9 Hillsboro - UPC# 70587

VDOT Proj. # 0009-053-111, P101, R201, C501

One Roundabout (Two-Lane) at Rte 9 & Rte 690 (Estimates based on 2011 Construction Year)	
Preliminary Engineering (PE)	$500,000
Environmental (Permitting, Wetland Mitigation, Cultural Resources, Hazmat, etc.)	$100,000
Right-of-Way & Utilities	$2,500,000
Construction (CN)	$3,000,000
TOTAL	**$6,100,000**

ATTACHMENT 5

One Roundabout (Two-Lane) at Rte 9 & Rte 690 - Hillsboro - UPC# 70587 COMPLETED: 03/06/2007; CHECKED:

PAVED AREAS

STATION	WIDENING			PAV SHLDR	GRAV SHLDR	GEOTEXT.	MILLING & RESURFACING		
	LENGTH (ft)	WIDTH (ft)	AREA (sq yds)	AREA (sq yds)	AREA (sq yds)	AREA (sq yds)	LENGTH (ft)	WIDTH (ft)	AREA (sq yds)
PERMANENT PAVEMENT - (Per Preliminary Materials Report - 13" Asphalt + 8" Subbase)									
Rte 234									
Mainline (Assume Demolish All Pavement & Reconstruct)			8,666.67						
Milling & Resurfacing									0.00
			8,666.67	0.00	0.00	0.00			0.00
TEMPORARY PAVEMENT									
			0.00						0.00

PAVEMENT ITEMS

No.	Item	area	rate	thick. (in)	unit	quantity	U/P ($)	Total ($)
10636	ASPHALT CONCRETE, TYPE I SM-9.5D	8,666.67	180 lb/sy/1.5in	1.5	tons	**780**	$ 75.00	$ 58,500
	(Permanent Pavement + Milling/Resurfacing + Temporary Pavement)							
	(Note: Area of New Pavement where previously no exist. pavement):	*5,026.67*						
10610	ASPHALT CONCRETE, TYPE IM-19.0A	8,666.67	240 lb/sy/2in	2	tons	**1,040**	$ 65.00	$ 67,600
	(Permanent Pavement)							
10642	ASPHALT CONCRETE, TYPE BM-25.0A				tons	**3,900**	$ 50.00	$ 195,000
	Permanent Pavement & Paved Shoulder	8,666.67	120 lb/sy/in	10	tons	3,900		
	Temporary Pavement	0.00	120 lb/sy/in	4	tons	0		
10128	Aggregate Base Material Type I No. 21B				tons	**4,930**	$ 23.70	$ 116,841
	Permanent Pavement & Paved Shoulder	8,666.67	170.00	8	tons	4,420		
	Gravel Shoulder	0.00	170.00	21.5	tons	0		
	Under C&G (St'd+ Rad. CG-7 (2.5') + 1.0' behind back of curb	1,307.78	170.00	6	tons	500		
	Temporary Pavement	0.00	170.00	4	tons	0		
00270	SELECT MAT'L TY I, MIN. CBR 30				tons	**5090**	$ 21.85	$ 111,217
	(Per Mat. Report, ~40% Unsuitables - Assume exc 24" below subgrad	3,466.67	163.00 lb/cf	24	tons	5086		
00355	GEOTEXTILE FABRIC				sy	**3470**	$ 2.64	$ 9,161
	Unsuitable Material (Assume all prop. pave, excavate to 2' below subgrade)				sy	3,467		
10781	PLAIN HYDR. CEM.CONC. PAVE. 8"				sy	**220**	$ 190.00	$ 41,800
	Note: Cost of Exp. Joints, Transverse Contract. Joints, and Thick. Edge of 8" to 12" for transition of 5' shall be Included in this item							
10630	Flexible Pavement Planing (SY/IN Depth - multiplied by 2 (per Andy Keeton 11/05))				sy	**0**	$ 5.00	$ -
11070	NS Saw Cut Full Depth (Asphalt Full Depth, Approx. XX")				lf	**4,000**	$ 5.00	$ 20,000
24430	Demolition of pavement				sy	**3,640**	$ 5.00	$ 18,200

INCIDENTAL ITEMS

No.	Item	unit	quantity	U/P ($)	Total ($)
12020	St'd Curb CG-2 or CG-3	lf	380	$ 17.00	$ 6,460
12600	St'd Curb & Gutter CG-6 or CG-7	lf	3200	$ 20.00	$ 64,000
13108	CG-12 Detectable Warning Surface	sy	10	$ 215.00	$ 2,150
13220	Hydraulic Cement Concrete Sidewalk 4" Includes Sidewalks & Curb Ramps	sy	1100	$ 30.00	$ 33,000
13212	R/W MONUMENT RM-2 (Note: Placed at each Prop. R/W Break (Sta/Off))	ea	25	$ 100.00	$ 2,500
21020	MEDIAN STRIP MS-1	sy	160	$ 80.00	$ 12,800

DRAINAGE ITEMS

No.	item	description	units	quantity	U/P ($)	Total ($)
01152	15" Conc. Pipe	Sta 200+00 to 238+00	LF	1500	$ 56.00	$ 84,000
06766	DI-2C, L=8'	Sta 200+00 to 238+00 every 300' each side	EA	10	$ 3,500.00	$ 35,000
00588	Underdrain UD-4	Set equal to CG-6 length	LF	3200	$ 7.70	$ 24,640

SEEDING ITEMS

(d77077quantities_seeding_area.dgn) area = 1.0 ac ncreased by 20%

No.	Item	rate	corr. Factor	unit	quantity	U/P ($)	Total ($)
27012	TOPSOIL CLASS A 2"	1.0		ac	.0	$ 4,800.00	$ 4,800
27102	REGULAR SEEDING	1.0	120 lb/acre	1.6	pounds	192.0	$ 12.05	$ 2,314
27103	OVERSEEDING	1.0	120 lb/acre	1.0	pounds	120.0	$ 3.90	$ 468
27215	FERTILIZER (15-30-15)	1.0	0.3 tons/acre	1.9	tons	0.6	$ 610.17	$ 348
27250	LIME	1.0	2 tons/acre	1.9	tons	3.8	$ 161.76	$ 615
27288	EROSION CONTROL MULCH		0.25 ac / 100' a	1.0	ac	5.0	$ 1,980.00	$ 9,900

GRADING ITEMS

No.	Item			U/P ($)	Total ($)
00110	Clearing and Grubbing	ls			$ 4,000

Removal of Bushes / Hardwoods			
Type	AC	U/P ($) / AC	Total
Brush	0.50	$2,500	$1,250
Heavy Brush	0.00	$3,000	$0
Hardwoods	0.00	$12,000	$0
			$1,250

Removal of Exist. Fence			
Type	LF	U/P ($) / LF	Total
Fence	500	$5	$2,500
Gates	0		$0
			$2,500

00120	Regular Excavation	cy	8,000	$ 25.00	$ 200,000
	Excavation due to New Pavement Layers (Area of New Pavement where previously no exist. pavement) & Conc. Island		3,269		
	Excavation due to Pavement Layers in Demolition Areas (pay for exc. of subbase only - demo. Includes asphalt)		809		
	Excavation of Unsuitable Material		2,311		
	Assume Roadway Cut 25% of paved area * depth = 1.5"+2"+10"+8"		1,294		
00150	Embankment	cy	2,000	$ 25.00	$ 50,000
	Assume Roadway Fill 25% of paved area * depth = 1.5"+2"+10"+8"		1,294		

OTHER ITEMS

		Total ($)
	Maintenance of Traffic (Assume 25% of subtotal)	$ 317,578
	E&S Measures	$ 15,000
	Permanent Signage & Pavement Marking	$ 30,000
	Landscaping	$ 50,000
00101	**Construction Surveying** (Assume 1% of subtotal)	$ 15,879
00100	**Mobilization (CALCULATED ON NEXT PAGE)**	

TOTALS - Option 1 (Roundabouts) - Construct Under Traffic - BASED ON CURRENT UNIT PRICES (NEED TO ADJUST FOR AD YEAR)

Subtotal 1		$ 1,603,769
Assume Premium for Night Work to Accommodate Demolition & Reconstruction of Pavement 20% of Subtotal 1		$ 320,754
Subtotal 2		$ 1,924,523
Mobilization	A) for contracts > $1,000,000: first subtract $1,000,000; multiply by 0.05; add $80,000 B) for contracts between $200,000 - $1,000,000: first subtract $200,000; multiply by 0.075; add $20,000)	$ 126,226
Subtotal 3		$ 2,050,749
Incidental Construction & Contingency @ 20% of Subtotal 3		$ 410,150
Subtotal 4		$ 2,460,899
CEI @ 19% of Subtotal 4		$ 467,571
TOTAL		**$ 2,928,470**

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